ST. LOUIS ARMY ENGINEER DISTRICT

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The warm glow of incandescent lights welcomes late afternoon visitors to the National Great Rivers Museum.

National Great Rivers Museum is A Must Stop For Corps Employees and Visitors Alike

Alton, Ill. - It has been 6 months since the National Great Rivers Museum officially opened its doors at the Melvin Price Locks and Dam.

The large majority of area citizens, even those who cross or travel near the Mississippi, Missouri or Illinois Rivers as they flow through the district, simply don't pay much attention to them - unless they flood. The museum aims to draw their attention to the rivers' modern-day uses, history, culture and ecology.

Construction of the museum and its future operation are a joint effort by the U.S. Army Corps of Engineers and the private, not-for-profit Meeting of the Rivers Foundation. Foundation president Jack Jacoby spoke of the organization's pride in being part of this great effort at the museum's opening. "The museum will be a great opportunity to educate people, especially kids, about the river," he said at the grand opening.

Visitors experience first hand the truly diverse purposes served by the Mississippi and the nation's other great rivers, as waterborne commerce highways, as sources of water and other nourishment and as providers of sustenance to the souls of those who love them. They

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Commander's Perspective

MAJ Joseph D. Tyron

As spring replaces winter's cold, I want to have a candid talk about safety.

Spring in the Midwest brings beautiful weather, which in turn encourages fix-up and clean-up projects. I know that is how I spend the extra hours of daylight from the time change. Unfortunately, many of these activities involve danger. And as funny as many of us find the TV show Home Improvement, most of us wouldn't survive being Tim "The Tool Man" Taylor.

Since you've heard most of these things before, I will try to cover a few things "quick and dirty. " There are two categories of accidents. There are those that are truly unforeseeable acts of God. We won't even talk about those because we can't prevent them. But the second category includes a multitude of things that we can prevent. Most of these accidents happen around the home and that is where I want to focus this discussion.

As we get outside and start up our power tools, we often forget how dangerous our own lawn mower can be. Mowers can be dangerous in many ways. Let me tell you of two I personally learned the hard way.

I have put some pretty good-sized dings in my vehicles from flying debris. The exit chute on your mower really is dangerous and rocks and foreign objects don't mix with your mower. Imagine what that would do to another person. The lesson here: make that walk through your yard and pick up rocks and foreign objects. Wear the right safety gear, eye protection, hearing protection, long pants and closed toed shoes.

Have you ever flipped your mower over? Unfortunately, I have. Be careful when mowing on slopes. When in doubt, get it with the hand held trimmer.

What about fueling your mower? A task filled with danger from the time you go the gas station until you put it in the tank. Always use approved fuel cans, never fill them in the back of a truck or trunk of a car, and always have cell phones off. The static build up can easily trigger a flash fire.

The lawn mower is just one of many things that can cause injuries and we often take it for granted, so think about doing it safely before you ever take it out.

There are keys to success, though. First of all, make sure your tools are properly prepared. If you have cleaned or otherwise worked on them over the winter, are all of the safety features back in place? Do you remember how each feature works? If there is any hesitancy on that question, break out the instructions and review them. Has anything deteriorated?

Next, are you prepared for the work? It may sound silly, but a preliminary session of stretching – a warm-up – may prevent stresses and strains that will make your project painfully memorable.

Do you have the proper safety equipment and more importantly, are you using it? Safety glasses, gloves, proper shoes or boots – all are as important as the tools you are employing.

Check the work area for safety. Are there exposed wires? Is the ground too soft to support a ladder or is a hillside too slippery to work safely on? Do you need someone to help you, or simply to stand by in case something happens?

Lastly, check the safety of others. Where are the kids and pets? Can they be injured by flying debris, extension cords or by something falling on them?

I urge everyone in the St. Louis District family to do all he or she can do to avoid preventable accidents and injuries. These kinds of injuries may result in lost work-days, late deliveries, or other inconveniences that show up in the bottom line. But more importantly, each may also be a personal tragedy or a painful incident for a family – yours personally or ours as a St. Louis District family.

If it takes a moment longer to be safe, that's time well spent. Hours in the emergency room are never time well spent.

Essayons!

In This Issue:

US Army Corps of Engineers
St. Louis District®

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served those same purposes during the continent's prehistory and still do today.

Through the winter months and into spring 2004, the number of visitors has grown steadily, totaling about 20,000 now. The majority have come since spring started to return to the wind-chilled public area alongside the giant locks and dam across the Mississippi River there. "We had several hundred a day during the peak of eagle viewing this winter, but it tapered off some after that," museum director Carol Ryan said. Projections are that the museum will host 250,000 visitors annually.

"It's been good preparation as we approach the Lewis & Clark Signature Event this May at Hartford, Ill.," Ryan said. The museum, close by that nationally prominent event, is expected to be a major attraction for visitors who come to the region to take part in the bicentennial commemoration. The Hartford Signature event, May 14-16, marks the jumping off of Lewis & Clark's Corps of Discovery exploration into the newly-acquired Louisiana Territory, stretching to the Pacific Ocean.

As predicted earlier, to date, the most popular exhibit at the National Great Rivers Museum has been the "Steer the Barge" exhibit.

In this exhibit, would-be barge pilots can take the controls through three realistic scenarios that face professional towboat pilots daily. Three screens give a pilot's eye view as you ply the Mighty Mississippi. You're in command of a 5,000 horse power towboat pushing a 15-barge tow 1150 by 105 feet. Visitors may try to:

- steer their giant tow into the lock chamber at Mel Price, only five-feet wider than the combined width and 50-feet longer than the tow,
- pilot this same tow southward under the Eads and Poplar Street bridges in St. Louis,
- or push their 20,000-ton tow northward through the St. Louis Harbor, meeting and hopefully successfully passing a down bound tow in the 300-foot wide channel.

The Confluence Store at the museum offers a broad variety of books, recordings and other nature and river related items for sale.

All simulated tasks take place under the stress of time constraints, hidden currents and winds. None are as easy as they may appear at first. In fact, one visitor, after trying to direct his simulated tow away from an approaching string of barges, turned to a friend and symbolically wiping his hands said, "You've got it from here."

Beside the highly popular barge simulator, a variety of other ways to examine the Mississippi are offered.

The museum aquarium affords up close and personal views of shovel nose sturgeons and long-nose gar.

Several exhibits explore the river's environment. A huge aquarium is home to a small school of foot-long shove nose sturgeon, whose ancient profiles and mouths that have evolved for feeding on material from the bottom of the river are presented for close-up viewing. Several long-nose gar round out the aquarium family for now, with paddlefish to be added soon.

They also enable people to hear nature's sounds, feel materials and examine them close-up. A two-story simulation of the bluffs along the river features many examples of the wildlife that populates the valley and surrounding watershed.

At another exhibit, visitors can try their skills at managing water flow through a series of simulated dams. As water flows into that exhibit, they must carefully adjust dam gates to maintain the prescribed 9-foot-deep pool while not overflowing or losing the downstream pools.

As people at another exhibit read facts and figures concerning barge commerce — how many truck loads of commodities barge tows carry and how far they carry a ton of cargo on a gallon of fuel— they slowly become aware of the towering white arch over-head that represents the cross section of a barge

hull, showing both its top and the more than nine feet that are hidden under water.

In this area, many Corps' navigation programs and projects are featured in videos and information placards.

Another popular exhibit in this area is a micro model of the river as it passes through the St. Louis harbor. As water flows through it, visitors can see how carefully engineered structures placed in the river can influence and control the placement and dimensions of the navigation channel, all with greatly reduced need for expensive dredging.

Jack Story (Beleville, Il.) and his grandson Justin (St. Charles, Mo.) examine the confluence of the Missouri and Mississisppi Rivers on the museum's micro model.

Elsewhere, a video enables historic figures to "tell" their stories of the Mississippi River. An interactive exhibit allows people to accelerate or stop the passage of time on the scale of a day, a plant's life cycle, the seasons or even of geologic time periods. More videos explain modern events and programs on the rivers.

A recent addition has been the Confluence Store, where the Jefferson National Parks Association, the organization that operates the Gateway Arch bookstore, offers a variety of books and other educational items for public purchase. "We consulted together on what would be made available and the results have been just wonderful," Carol Ryan said of the store.

A movie theater is next on the list of offerings to open. "We will have that online by mid-May," Ryan said. A spectacular half-hour movie titled, "The Power of the River", is finished and installing new video equipment is all that remains before it will be on view.

Carol Ryan herself has been a critical element of the museum's opening successes and future promise.

A 12-year veteran as a Corps Park Ranger, Carol came to St. Louis in 2003 when the museum was taking what would be its final form. Coming as the Rivers Project Interpretive Services Outreach Team Leader, leading the museum's efforts was only part of Ryan's new assignment - albeit a very large one.

"I headed up the Lewis & Clark Regional Visitor Center at Gavins Point, Yankton, S.D.," she said. "It was great, but this is magnificent," she expressed as she compared the new National Great Rivers Museum to the Corps' dozen visitor centers across the United States.

"This is a public portal to the Corps and the wonderful things we do," she said. "We are partnering with other groups, local and regional, to distribute their materials and information. We work with tourist and convention bureaus to accommodate visitors to the area," she pointed out. She invites the Corps family to consider the facilities there to host meetings or seminars.

Much of the museum's work is support by a cadre of 25 volunteers, Ryan pointed out. Many are retirees who devote a morning or a day. "We couldn't operate without them. They greet visitors, answer questions and, help them have a great experience," she said. "And we are always looking for more people to participate. Come in and visit us, or call 618-462-6979 to become a part of the family," she concluded.

Hopefully in May the museum will resume lock and dam tours. "We've had elevator problems," Ryan said, explaining the temporary halt in the tours. "We take them to the top of the dam, walk its length and hopefully each tour group will get to see a tow pass through the 1200-foot chamber. Sometimes we have to wait for that, but it is worth it.

Ryan also hopes better signage may be erected soon, as the museum is hidden from view by the levee between Illinois Highway 143 and the grounds. "We need to be easier to find, especially for visitors who aren't familiar with the area," she acknowledged.

And of course, the red carpet is out for Corps employees, their families and friends. "Come yourself if you haven't been here yet," Ryan invited fellow Corps employees. "Bring your friends and neighbors. This is a first class attraction. That's what other visitors have said. You'll feel a greater sense of pride in what you do when you are able to share it with others," she promised.

The museum is open 9 a.m. to 5 p.m. daily. "And it's free," Ryan reminded.

If you would like to take a "virtual tour of the National Great Rivers Museum beforehand, check out the 360 degree views of the new facility on the web at: http://www.mvs.usace.army.mil/Rivers/ngrm.htm.

Volunteer Helen Whalen discusses his visit with Jack Story of Belleville, Il.

St. Louis District Corps Ambassadors—Teaching America's Future Movers and Shakers

The St. Louis District didn't celebrate 2004 Engineers Week...instead, the District celebrated Engineers Month. The month long program of education and outreach events included shadowing opportunities, panel discussions and efforts to take the story of engineering and the U.S. Army Corps of Engineers' role in America to the public.

The District ended the month-long endeavor with our annual partnership with the St. Louis Science Center. The two-day event entertained and educated more than1500 participants including visitors from West Africa.

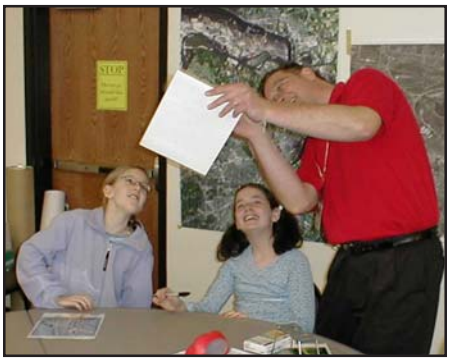
Our exhibits included the interactive bridge building demonstration, the interactive dam display, a documentary of USACE history and an exhibit showcasing our Iraqi missions and the new Gulf Regional Division rebuilding war torn middle eastern nations..

Kids who took part in the bridge building program received an official bridge building certificate and a "Junior" US Army Corps of Engineers badge for their accomplishments.

Today, it's a fun toy to put together. Tomorrow a youngster will use these same principles to solve major engineering problems.

As additional fasteners and parts are put in place, the bridge get stronger until it easily supports youful testers as they crawl across it.

None of the events described above would have been possible without participation of Corps employees from throughout the District. Each deserves a special thank you for their personal efforts to tell the Corps story and expose people to our mission and the challenging work of engineering. The team members comprising the E-Week PDT for another successful year were: Toni Serena, Keisha Hurst, Bryan Colegate, John Boeckmann, Travis Tutka, Amanda Sutter and Lattissua Tyler.

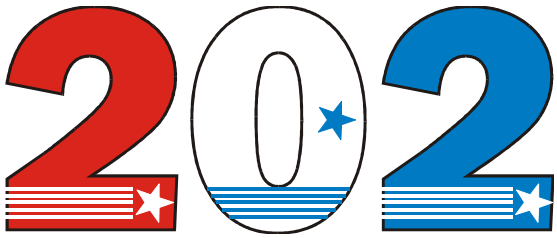


Youngsters share Paul Clouse's enthusiam as he explains the essentials of photogrammetric mapping

In a related effort, Paul Clouse took on the role of a teacher to a group of academically gifted students from the Fox School District. His participation in the Challenge Program was part of an overall program to help connect the group of 5th graders with professionals in various career fields. Paul taught the students from Guffey and Rockport Heights Elementary schools, about the US Army Corps of Engineers and introduced them to the essentials of photogrammetric mapping.

The St. Louis District Ambassadors participate in numerous outreach programs throughout the year. If you are interested in helping to inform people about the District, the Corps and your professional skills, contact Lattissua Tyler in Public Affairs, at 331-8095.

Separate U.S. Army Corps of Engineers turns 202 years old.



If you thought you noticed some heat and the pungent odor of birthday candles when you came to work Tuesday, March 16, it may have been a cake for the U.S. Army Corps of Engineers. That date marked the 202nd birthday of a separate Corps of Engineers as a part of the U.S. Army. Paul K. Walker, Ph.D., Chief, Office of History at Corps Headquarters wrote the following:

In the Military Peace Establishment Act of 16 March 1802, Congress established a separate Corps of Engineers to be located at West Point, New York, and constituted it as a military academy with the Chief Engineer serving as superintendent. This action, taken at a time when the overall size of the Army was reduced, placed the Corps on permanent footing and capped a quarter century of efforts to provide professional training for officers.

The Corps of 1802 traced its roots to June 1775 when the Continental Congress organized the Army and provided for a Chief Engineer. Engineer officers, mostly recruited from France, gradually joined the ranks. In 1778, Congress added Engineer troops organized into three companies of sappers and miners. At the behest of the Chief Engineer, Brigadier General Louis Duportail, all Engineer officers, sappers, and miners were formed into a Corps of Engineers under his command in March 1779.

At the end of the Revolution, Congress rejected arguments favoring a peace establishment and the Corps of Engineers mustered out of service along with most of the Army. When threats of war in 1794 highlighted the need for seacoast fortifications, Engineers returned to the Army in a combined Corps of Artillerists and Engineers. A second regiment was organized in 1798.

During the Revolution, many officers, including General George Washington, saw the need for technical education so that the Army would have skilled American Engineer officers in the future. Provisions were made for Engineer officers to instruct the companies of sappers and miners in field works according to a program devised by the Chief Engineer. Minimal instruction was actually given so it was widely argued, near the end of the War, that at least one formal academy was needed at West Point; because of the nature of their work, Engineers were thought to be in particular need of formal training. The artillerists and engineers received some instruction in the 1790s, but it fell far short of requirements.

President Thomas Jefferson played a key role in getting passage of the 1802 legislation. The new Academy was part of his plan to reform the Army and educate a new class of officers who supported his own democratic principles. It also reflected his desire for an Academy not merely military in nature, but designed to produce soldiers also schooled in mathematics and science to serve the Nation in peacetime. Accordingly, he selected Colonel Jonathan Williams, more scientist than professional soldier, as Chief Engineer and the Academy's first superintendent.

MVD Leadership Reminders Distributed on Wallet-Sized Cards

The exercise of leadership is fundamental to good order and discipline and to the way organizations accomplish their business and goals.

MVD Commander BG Don Riley recently directed that a visible reminder of the best principles of leadership, its proceses and the skills that go into its makeup be made available to every employee in the Division.

The visible reminders of the Division's vision, personal leadership characteristics, leader skills and the After Action Review process end with the General's admonition to "Raise the Standard. Cards are being distributed to the more than 800 District employees.

Acting District Engineer MAJ Joe Tyron shows the first "Leadership in MVD" card in the St. Louis District.

US Army Corps of Engineers
Mississippi River Commission
Mississippi Valley Division

St. Louis District Answers the Call

By Kathrine Kelley

After a mere two weeks in Baghdad, Iraq, Col. Williams, District Engineer, participated via telephone in the "State of the District" town hall meeting on Dec. 16. When asked if he needed anything, Col. Williams made a request, not for himself, but for the children of Iraq: "Could we send some school supplies and toys?"

Once again the St. Louis District and the surrounding communities stepped up to the plate. Over the past year the district family, including the lakes, locks, area offices and surrounding communities, has contributed to Operation Enduring Cookies in March 2003, Operation Thirst Quencher in July 2003, and in November 2003, holiday care packages were sent to Corps Soldiers and civilians stationed in Iraq and Afghanistan.

Our latest campaign, a drive for school supplies, toys and children's sport equipment, was launched Jan. 20 by the District's Civilian Activities Council and has turned out to be the largest campaign in terms of participation.

For several weeks district employees, along with some local communities, sent in donations and even money to help pay for postage. In February, twenty-two boxes were packed by the CAC team and shipped to our Corps offices in Iraq and Afghanistan for distribution to Iraqi schools and a nearby orphanage in Afghanistan.

Approximately 78 boxes of school supplies, toys and sports equipment were collected at Carlyle Lake. The supplies were donated from various sources within the St. Louis area including individuals and organizations from both Missouri and Illinois. Some of the donators included the Highland schools, Belleville Hospital, Carlyle Grade School and University of Illinois, Springfield.

The boxes, which weighed more than 3,000 lbs, were put on pallets and shipped to Col. Williams in Baghdad by FedEx, free of charge, on March 16.

Special thanks go out to all district members, but a few people deserve special recognition for going above and beyond.

Mike Daily, Regulatory Branch, got the word out to schools in Highland, Ill., resulting in an overwhelming response. The donations were sent to the Carlyle Lake Office where Kim Hammel and Stacey Bedard, Carlyle Lake Park Rangers, were instrumental in boxing all the donations and setting them up on pallets. Thanks to Mike, these boxes, which totaled over eighty, were picked up and shipped for free by FedEx.

Packaging donated school supplies and playground equipment for shipment to Iraq, are (L) Mike Daly, Katherine Kelly, Judy Willett, Carolyn Ruebushch, and Catherine Cummins.

Vel Swindle, Executive Office, teaches about 60 kids in youth groups at her church. Her group, know as AWANAS," responded to a low-key announcement she made without a lot of fanfare, that the St. Louis District was collecting school items for Iraqi children. The youth generously contributed several boxes worth of items, as well as $35 to help pay for shipping. Thanks AWANAS!

U.S. Senator Jim Talent and Missouri State Senator Charles Gross were also very helpful in making this a successful campaign.

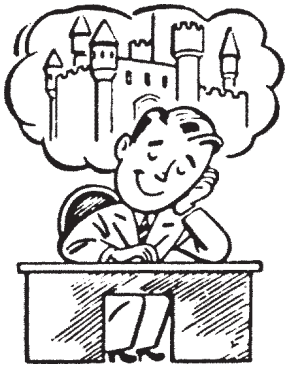
Thanks also goes out to the project offices, which coordinated local drives that resulted in boxes of supplies and postage to help cover shipping.

A big hand is also due to all the members of the CAC who coordinated this drive, along with all the many other projects and activities they provide for us all year long.

Thank you!

A proud COL Williams pitches in to do his part to take delivery of school supplies donated by his own St. Louis District personnel.

The Way I Remember It



The original St. Louis gage faithfully reveals the river stage at 18 feet on this day. Its electronic replacement is located on the historic Eads Bridge, a wonder of the 19th century.

One of the things I first encountered when I began working on the Mississippi River was an almost religious devotion to its history, folklore and traditions. River folks did not want anyone tampering with the unique, colorful language and the time-honored practices of their Mississippi River. I learned this the hard way as a young river engineer.

In January 1981, I was asked by James T. Lovelace, Chief of the Hydrologic and Hydraulics Branch to take over the Water Data Section (In 1988, the Water Data and Water Control Management Sections were combined. Since then, Mr. Donald M. Coleman has been the Chief of this mission).

One of our responsibilities was managing the Water Data Streamgaging Collection Network. The river gages along the river are varied and each has unique characteristics. Little did I suspect how important these differences were.

As a young engineer it seemed perfectly logical to convert all the gages to the same datum – or reference. This would create homogeneity throughout the collection network. I attempted to do this and was instantly overcome by a flood of opposition from users. You would have thought I had committed some horrible transgression against everything that was sacred. Here are the details!

As you look at our web site today, you can see the daily readings for each location on the river for which we collect data. Closer inspection will reveal that some gage readings are expressed in "stage" and others are expressed as "elevation". Why is this done?

Perhaps it is easiest to explain with a familiar example. Let me use the gage located under the Gateway Arch to illustrate: the St. Louis Gage.

We need to explore the history of this gage to set the scene for my attempt to render the nearly indecipherable, sensible. Another reason to use this gage as an example is because this is our oldest gage in the St. Louis District. We began collecting continuous daily data at this location in 1861. We also have intermittent data from earlier periods, back to the "year of the great flood" in 1785 – "le'anne de grande eaux".

By the way, there is another story about data, related to measuring the river's flow (the quantity of water flowing past a point during a period of time). This topic is even more complex. So for now I am going to confine myself only to the water's level and delay discussing the quantity of water until I can retire and perhaps avoid altogether having to take this subject on.

I have an old technical publication from the Mississippi River Commission (MRC) detailing river data for a number of river gages. (Note – the MRC was located in St. Louis from 1879 to 1929).

The page discusses the St. Louis gage:

> *"The gage readings herein tabulated are all referred to the same zero, that of the U.S. Engineer gage at the foot of Market Street, St. Louis. All readings after 1873 were taken on this gage. The gage zero is the low water of 1863 and is 379.80 feet above mean Gulf level."*

Lest you be convinced that there is sound scientific basis for the gage reading at St. Louis, this is how this "stake in the ground" was established. An ice gorge formed during the winter of 1863 upstream of St. Louis. Water was held back upstream of the ice gorge and the water level below the ice was therefore artificially low. No one could remember it ever having been lower. Since this was the lowest river stage that the inhabitants of St. Louis could remember, they established it as "zero" on the gage.

All future gage readings would be referenced according to this early decision, which has now become river tradition. Of course, no one knew how to relate this "stage" to a universal datum (mean sea level). Why, you ask? – because the datum was not established until 1929.

Ok, where are we? The river was low in 1863. I seem to remember someone saying, "Boy, Claude, I ain't never seen it this low before." More precisely, the stage established then was an arbitrary reference for future comparisons – higher or lower. Elevation, on the other hand, is a method of adopting a commonly accepted plane of reference by which all readings can be related to one another.

Why aren't all the stage readings

converted to elevation readings? That's what I asked in 1981, a question for which you may remember that I was vigorously dope-slapped for even asking.

Instead of calling the flood stage at St. Louis 30 feet, why don't we call the flood elevation at St. Louis - 409.80 feet? These two numbers give exactly the same river level but are expressed in two different ways.

Well, I'll tell you why: it is because the river people who have been using this gage since the 1870s (and their descendants) were not – and are not – about to change. This is the way they learned to use the gage and this is what they are comfortable with.

I discussed this with river pilots, facility owners, fleeters, boaters, etc. about this matter. I told them I thought it would be easier to compare one gage with another if they were all referenced to the same datum. Oh my goodness – was I wrong. I thought they were going to throw me into the river and tell me to call them when I could touch bottom. "YOU ARE NOT," Strauser, "going to change the river's history or traditions. This is the way we have used this gage and this is the way we are going to continue to use the gage. Don't bring this up again."

I haven't

So when you look at flood stages on the river you will see the flood stage at St. Louis is 30 ft. The flood stage at Chester, Ill. is 27 ft. The flood stage at Cape Girardeau is 32 ft. Does this mean there is a dip in the river at Chester and a bump in the river at Cape? Nope. It just means each gage has a different history and a different zero reference.

Can all these be correlated to the same reference? Yes, and we do this routinely – internally – where no one notices except we engineers and technicians. We have trained ourselves to use both systems and are comfortable using stage and/or elevation. But I will waste no more energy nor risk anymore beatings trying to convince anyone else.

Now, let us journey above St. Louis to the navigation pools created by the locks and dams. Here, we have created our own history. We were also unconstrained by previous logic – or some would hold, logic whatsoever.

This double lockage clearly demonstrates the difference between pool elevation and tail water. Another tow patiently waits its turn to transit the 600-foot chamber at Lock 25.

The river levels below the locks and dams are given out to the public in stage. The pools are measured in elevation.

We have combined both methods of reporting river levels and we daily report them to the public. Can this be even more confusing? Probably, but decide for yourself with an example.

Today the pool elevation at Clarksville, Mo. (Lock and Dam No. 24) is 448.6 ft. The tailwater reading is 16.8 ft. If you subtract the small number from the big number the difference in river levels above and below the lock and dam is approx. 431.8 ft. – right?

Wrong! You need to convert both numbers to the same system of measurement. You need to convert the tailwater "stage" reading to an equivalent "elevation" reading. To do this, add a "zero" to the stage reading. "Zero" in this case is 421.8 feet; therefore, this converts to 438.6 ft. (421.8+16.8). Subtract this number from 448.6 and you get 10.0 ft. This is the difference between the water level upstream of the structure and the water level downstream of the structure. Only an engineer would understand it. Only a mother might love it. But that's the way it is.

Let me conclude by discussing one last topic. The datum established in 1929 was called "mean sea level". This datum was an average of the sea level over a period of many years at 26 tide stations along the coasts of the United States and Canada. Because it was an average, it did not represent the local mean sea level at any particular place or time. Today we have translated all of these averages of what we called "mean sea level" into the "National Geodetic Vertical Datum" or NGVD.

I have departed from my normal text and picture-based attempts to describe the history and events of the Mississippi River. As engineers often do, I have fallen back on numbers versus waving my arms and talking with my hands. The math's pretty simple, but defining the numbers is a little more challenging. But if we made it easy, then everyone would understand.

Let's keep it a secret – just between you and me. This is the way we'll all remember it. *Claude Strauser*

Service Base Personnel Spar With Tricky Water Levels to Replace Inch-Thick Steel Armor on Lock 24 Guide Cell

Clarkesville, Mo. — The third and final winter closure for Lock 24 at Clarksville is over. During the final seasonal closure, scheduled as part of an overall $87 million major rehab of the lock, Midwest Foundation Corp. of Tremont, Ill., and Massman Construction Co. of Kansas City, Mo., removed and replace deteriorated concrete along the landside lock walls.

But the lock walls weren't the only things showing the lock's 50-plus years.

The Rivers Project Office took advantage of the winter closure and sent District Service Base crews north to Lock 24 to make critical repairs to the 1-inch- thick steel skin on the downstream guide cell. "Years of steel-on-steel friction from passing tows severely warped and cracked the heavy outer steel shell," said Paul Schmidt, Service Base Project Engineer.

The 27-foot in diameter cell is an armor plated circular tube filled with concrete and rock. Tows push up against the cell and use it to guide them into the lock chamber. Basically it's a "huge bumper," Schmidt explained.

The repairs, which could not have been done during normal lock operations, began in January. The Service Base crew brought a floating work plant with them and prepared for winter weather by attaching work platforms to the cell. The structures included a wrap-around weather enclosure with temporary heat to assure relative comfort, high productivity and welding quality.

Crews replaced a huge 1-inch thick 10-foot-by-14-foot steel section. They also welded into place eight new 1-inch thick rub bars, 18 inches high and 20 feet long, to keep future rubbing from damaging the steel skin plating and guide cell interior.

"Talent, guts and team work" were the keys to the Service Base's contribution to Lock 24's major rehabilitation according to Paul Schmidt.

Work was halted midway for several weeks due to high tail water elevations. For a while there was concern that continued tail water increases would threaten work's completion. "Permanent damage would have been done to the structure if the lock was re-opened to navigation while portions of the thick protective steel armor plate remained missing," explained Schmidt.

Rivers Project, the Service Base and Water Control worked together to formulate a plan to lower the river levels, exposing the critical work area while still maintaining safe water levels in the St. Louis Harbor.

Simultaneously, Locks 24 and 25 lowered and held their pools. "We coordinated with Jerry Stroud, Lock 25's lockmaster, to lower and hold the pool so the crews could work," said Dave Nulsen, acting-lockmaster at Lock 24.

Weekend rains, Feb. 21-22, bumped up the elevation and made scaffold walkway boards wet. Crews countered by stacking new boards over wet ones to keep their bodies and equipment dry as they worked to complete welding.

At the end of the work, scaffold steel support angles remained under water and needed to be cut away and ground down smooth, or else the sharp edges would have ripped the sides of passing tows like a can opener, said Schmidt. Once

again coordination between the Service Base, Water Control and Locks 24 and 25 provided a quick window of opportunity on Feb. 24 to allow crews to cut away and ground smooth the angles before water levels had to be brought back up.

Successful coordination between the Rivers Project Office, Water Control and the lockmasters permitted all 8 steel rub strips to be successfully installed.

Thanks to everyone's cooperation the lock is again well protected. "This was a satisfying project for the Service Base," said Schmidt. "We had project success due to talent, guts and teamwork."

Most Eye Injuries Occur at Work!

Every day more than 2,000 working people in the U.S. suffer an eye injury.

Damage to the eyes is usually caused when something unexpected happens. It could be a sudden splash of caustic chemical or an airborne sliver of metal.

Workplace accidents are the leading cause of vision loss and blindness. Of the injuries, 10 to 20 percent result in temporary or permanent blindness.

Many of those injured say they didn't think they needed to wear eye protection or were wearing inappropriate eyewear.

Doctors at the American Academy of Ophthalmology say proper eye protection is vital, especially in construction, manufacturing, and automotive repair.

Eye health includes more than accident prevention. As more people use computers, eye fatigue and difficulty focusing have become common problems. In themselves, computer screens don't damage vision.

To reduce eye fatigue, computer users should take frequent breaks and rearrange their workstations for easier access to their computers. Proper glasses or contacts can often relieve eye fatigue.

Sometimes heating and air conditioning systems can make eyes feel dry and scratchy. Over-the-counter eye drops usually relieve symptoms. If the problem continues, see your eye care professional for an evaluation.

There you have it. Wear eye protection when there is even the slightest chance of an injury, and make changes in your workstation to relieve eye fatigue.

Your eyes will be safer and healthier if you make the extra effort.

"Green Light" Goes On Early at Lock 24

Clarksville, Mo. – It often seems like time stops for motorists… sitting at red lights… waiting for "the green."

Navigation interests were pleased when the "traffic light" at Lock and Dam 24, Clarksville, Mo., turned green for them nearly two days early Friday, March 12 at 2 p.m. The first tow through was the northbound American Commercial Barge Lines vessel MV Bill Carneal with 16 empty barges. Six more tows chomped at the bit as Bill Carneal and her charges showed the way.

The lock was scheduled to open on March 14 at 6 a.m., but hard work by joint venture contractors Midwest Foundation Corp. of Tremont, Ill., and Massman Construction Co. of Kansas City, Mo., resulted in traffic resuming before the promised date and time.

This concludes a three-month-long winter closure that was necessary to facilitate major rehab that could not be done during normal operation. The lock closed December 15.

MV Bill Carmeal finally clears Lock 24 with her load of sixteen empties.

During the closure deteriorated concrete on the landside lock wall was removed and replaced with precast concrete panels. New machinery was installed on the landside lock wall, and the lock's 600-foot long, 110-foot wide, 35-foot deep chamber was dewatered.

The dewatering allowed contract personnel to remove demolition rubble from the lock chamber floor and repair the lock floor.

This is the third and final winter closure for Lock 24. The work will be completed in November 2004.

The $35 million concrete rehabilitation contract is part of the larger $87 million major rehab project. It is being financed on a cost-share basis with 50 percent of the costs being funded from a trust fund that collects 20 cents per gallon of diesel fuel purchased by commercial navigation vessels.

Faces & Places: Engineering Division

Shelly Barunica, the voice of Engineering Division

On June 1 Shelly Barunica, Engineering Division's secretary, will celebrate her 23 year anniversary in federal service. Shelly, who began working for the St. Louis District in September 2000, has spent all 23 years working in the St. Louis area. Aside from her years serving the Corps, she worked for the former U.S. Aviation-Troop Command, ATCOM, and the Charles Melvin Price Support Center, Granite City Depot.

When ATCOM was selected for base realignment and closure in 1995, Shelly found work at the Granite City Depot. Going to work at the depot was an adjustment, she explained, because ATCOM was largely a civilian organization. At the Granite City Depot, Shelly was the commanding lieutenant colonel's secretary. For the first time in her career she worked in an office staffed by military service members. Her numerous responsibilities included working base operation issues, managing the commander's calendar, attending staff meetings and handling dignitary's visits.

Shelly supported three different commanders in her seven-year service at the depot. Her last two bosses were very regiment, she remembers. She was required to stand at parade rest while in the commander's office; she had to ask for permission to sit, and "yes, sir" and "yes, ma'am" responses became second nature. These habits were so ingrained when she arrived at the District, that John Dierker, Engineering Division's assistant chief, had to keep telling her to stop calling him "Sir" and "Yes!" she could sit down.

Shelly quickly settled into a role she has come to love. "I love my job," she said. "I love working for John and Mel [Baldus, Engineering Division's chief]. To come from where I did and to now work for two great men is truly wonderful."

As the Engineering Division's secretary, Shelly handles CEFMS, personnel actions, travel for Mel and John, luncheons and retirements, mail, correspondence, meetings and phones. "Basically I just keep things moving and take care of my bosses," she said.

She went on to explain, "You could say I'm a window that information goes through to get to the front office." Any Engineering Division correspondence or actions destined for the front office have to be routed through Shelly.

Shelly has been married for thirteen years to her sweetheart of twenty years, and in June 1995, she and her husband Frank became the proud parents of twin boys, Frankie and Cody. The boys have definitely kept life interesting.

The first five years were challenging. The twins didn't sleep through the night until they were five years old, Shelly said. "Sleep deprivation is a horrible thing," she said while laughing. Shelly remembers being so tired and looking for some sympathy from her mother but was greeted with the response, "You can sleep when you're dead."

At the time those were pretty tough words, but Shelly credits her mom with encouraging her to just push through. "She taught me I could do anything I had to do, and the strength would be given to me one way or another."

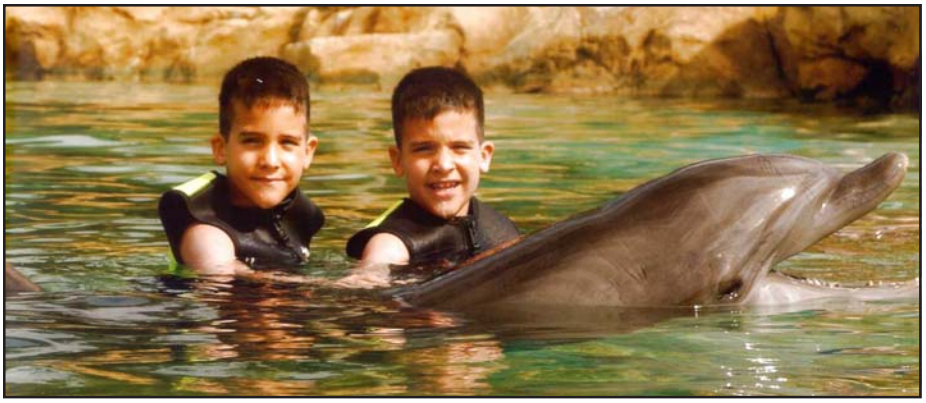
The boys are eight years old now and in the third grade. Their extra curricular activities definitely keep mom running. Currently they are both playing indoor soccer and basketball, with outdoor soccer and baseball set to start in a few weeks. "I spend a lot of time going to practices, and I never miss one of their games."

Her immediate and fairly large extended family gives Shelly great personal joy. And after 23 years of federal service, she's definitely seen the good and the bad, and she'll be the first to tell you the last four years with the Corps have definitely been "good."

"I have never seen an organization that takes such good care of its people," Shelly says about the Corps. "They work with you, and I really think they care about family." To support her claims, Shelly points out the District's flood fighting and urban rescue missions, the numerous gift boxes that have been sent to Iraq and Afghanistan, and the different working options, such as alternating work schedule, tele-work and flex time, the Corps offers its employees.

Without even knowing it, Shelly is a perfect example of the senior leadership's vision of the Mississippi Valley Division. "Our people come to work excited every day because they are valued members of a continuously improving team of selfless national servants."

She gets great professional enjoyment out of her job and it shows.



Shelly's twins Frankie and Cody enjoy a swim with a friendly porpoise.

Dave Berti and the Geese

Editors note: Dave Berti, assistant operations manager at Mark Twain Lake, passed away Tuesday, March 2, 2004. A sad quiet settled over the District. But it was soon broken by one person, then another coming forward to talk about Dave – to celebrate his too-short life and the legacy he left the District, the Corps, the nation and most important to Dave, his friends and family. There's not room to include all that was said. And this is not an obituary. Rather, it is how some hold Dave Berti in their hearts and memories.

"It is with great sadness that I inform you of the passing of Dave Berti, after a heroic battle with cancer. Dave was a greatly loved and admired member of our Corps family. He left his mark upon all of us during his 28 years of service. Dave worked at Lake Shelbyville and Rend Lake, on several headquarters details and committees, and most recently and notably at Mark Twain Lake."

Thus began the e-mail from District Engineer, Col. C. Kevin Williams, officially informing the District of the loss of Dave Berti.

Many told of Dave's skills, technical knowledge and how incredibly smart he was. All finished by telling how he related to people. "I try to do something good for somebody every day," many reported Dave Berti often to say.

Rend Lake Manager Phil Jenkins, perhaps Berti's longest-time friend and colleague here, remembered: "Berti came to Rend Lake from Southern Illinois University at Carbondale where he earned a bachelors degree in forestry. He was 21 – a city kid from Chicago. I didn't think he knew much. But he hit the ground running and never slowed down," he said. "He had that rare combination of intelligence and people skills," Jenkins said.

And he was so smart. Jenkins told of the only time he ever got the best of Dave. "He had been away at grad school. When he came back we were visiting work sites and a flock of geese flew over in a 'vee' formation. I asked him if he knew why one side was longer than the other. He started to speak almost like an aeronautical engineer, discussing lift, drafting, wing-tip vortices and such. When he paused, I just looked at him and said, 'I think it's cuz there are more geese on one side than the other.' He glared and called me a name. I don't think I ever got one over on him again," Jenkins said.

Mark Twain Lake Operations Manager Dennis Foss called Dave Berti a tireless worker who lived for his family and his job. "He was never afraid to tackle anything," Foss reflected. One pride and joy was the shooting range at Mark Twain Lake. Foss told how Berti built a partnership of the Corps, the Missouri Department of Conservation and the National Rifle Association to turn the range from a dream into a reality. "People were always sighting in rifles anyhow, but now they can do it safely and properly, thanks to Dave. This is the only facility of its type in the region," Foss said. "Even law enforcement agencies use it," he noted.

"He championed all sorts of recreation – again, leveraging numerous partnerships," Foss told. Mark Twain Lake features 25 miles of horse riding trails, with more in the works, thanks to his work partnering with the Missouri Equine Council. The partnership with the Tri-Cities Commission has resulted in an annual rodeo on the 4th of July and a championship bull riding competition on Labor Day as well.

Like everyone else, Foss concluded by telling, "Everyone who worked with him liked him. That's a real tribute."

The chorus of voices included many who Dave had mentored early in their careers. Leah Morrow, now a Park Ranger at Saylorville Lake, Iowa, told how Dave had an uncanny ability to see strengths and weaknesses in individuals. "He helped me market my strengths and improve my weaknesses," she said. "He pushed me where I didn't want to go and gave me tasks I just knew I could not handle. But I didn't fail and each new success gave me the confidence to try something else," she added.

Lonnie Forrest, Recreation and Faclities Manager at Mark Twain remembered, "Dave hired me as a Corps employee on my birthday. He taught me many values. He told me that the most important things in my life were my own personal values. Our relationship started with professional respect," Lonnie said.

"Then we shared work ethics and values. And finally we became close – very close – personal friends," Forrest remembered. "Dave expected a lot of people. But he gave back so much. He gave them the tools, the training and the opportunities.

Long hair, long ago, a younger Dave Berti quickly showed himself to be a future leader in the St. Louis District.

Rob Gramke, who now works in the District's Regulatory Branch, told how he first met in the parking lot of the "Places" store in Palmyra, Mo. "I lived in Quincy, Ill.," Rob said. "Dave said he'd meet me half-way in between Mark Twain Lake and where I lived. I was in college at the time, and after we talked, he said, 'I think I can offer you something better fitted to your degree field.'" I was working construction and warehouse jobs at the time and he brought me aboard as a SCEP employee. It was wonderful. He showed me respect, showed interest in me and seemed to enjoy mentoring me. He taught me to lead by example and action."

Rend Lake, Park Ranger Oliver Craig remembered that Dave Berti always preached doing your best. "Dave told me several times, he was always happy but never satisfied. That's something to live by," Craig said.

Dave came in every day with a sense of fun in his heart. Many characterized him

as just being thrilled to be at work. Dawn Kovarik, a Rend Lake Park Ranger, told how they were able to arrange for a flyover of a giant B-52 bomber for Rend Lake's first Armed Forces Day celebration. "Dave was soooooooo excited," she told. "After the event he would come down the hall with his arms spread, making airplane sounds and grinning."

"Willing to take a risk," was also a Dave Berti identifying trademark. "He taught me to play in gray areas and stretch the envelope as long as I was willnig to be accountable for what I did," Leah Morrow said. "Yes, he was a risk taker. But he wasn't foolish," Phil Jenkins, Rend Lake Operations Manager told. "He knew which fights to pick," Jenkins added wryly.

"Totally prepared," is how Tom Hewlett, Chief of Real Estate and Acting Deputy District Engineer remembered Berti. "He scoped out projects, large and small. Then he put them on the shelf. If a nickel appeared at the end of the year, Dave Berti had just the right project ready to go. And he got the money," Hewlett said admiringly. "He was also a team maker," Hewlett noted. "He looked for and found opportunities to mend fences and overcome conflicts."

Holding degrees in forestry and wildlife biology, he was equally renowned for his work in areas far, removed from those disciplines. One example was his work involving the Clarence Cannon Dam's power generation capa-bility and the Southwest Power Administration (SWPA).

Peggy O'Bryan, the St. Louis District's new Chief of Construction Operations noted that six districts generate power for the SWPA. All have large staffs overseeing their programs, including people with long term experience in the power generating business. St. Louis had Dave. O'Bryan, who first met Dave when they were both on developmental assignments at Corps Headquarters in Washington, also cited Berti's expertise in budget matters, but said perhaps his most important contribution was his identifying and mentoring the future workforce for St. Louis. "He always had a keen sense of the pulse of the organization, its people and their morale," she added.

Dennis Fenske also lauded Berti's budget skills and character. "He thoroughly understood the O&M budget process," Fenske said. He strategized and positioned budget packages so that he stayed on step ahead. Somehow he knew trends, identified where people's thinking was going before others did, and seemed already to be there when others realized where the Corps was headed. Fenske also credited Dave with building a cadre of future leaders, identifying them early in their careers and then teaching them his work ethics, processes and problem solving methods.

Dave Busse remembered Dave Berti: "There are so many things to remember about Dave; how he loved his family, how he pushed the envelope to be an innovator, how he mentored folks at Mark Twain Lake and throughout the entire District, how he always gave his very best to every thing he did. But for me I'll always remember Dave with a single word - FRIEND."

Berti's work in the personnel arena was also legendary. He developed a professional 400-job series for rangers and managers and a system of accurate grade levels for field project employees. His work with local trade unions and District officials also resulted in an unprecedented program to train students for power plant jobs under the Student Career Employment Program (SCEP). And he was the first manager in the District to use the Federal Career Intern Program and found innovative ways to hire teachers during summer breaks.

Also characteristically, although cruelly ill from the ravages of his illness, Dave worked until his next to last day. "Dave was still striving to complete work on the ongoing coordination of resources between Clarence Cannon Dam and the Southwest Power Administration," Col. Williams told in his sad message to the District.

And he related to his friends to the end. Kathy Hatfield told, "David called me the Thursday before he died… He told me he had one agreement done, but didn't think he could finish the other because he was slipping away and that God was going to take him soon. What a guy – conscientious to the very end. I will sincerely miss him. I was blessed to call him, 'my friend.'"

Dave Berti's greatest joy in his work was watching the young people he motivated gain confidence and skills.

Phil Jenkins related the story of the goose formation – in his eulogy.

"Then we followed Dave's remains to the cemetery. As the family gathered under the tent," Tom Hewlett said, " two flocks of geese flew over in perfect formation. Then they flew back and their formation broke as they circled quietly in the distance. It was eerie after what Phil had told us earlier."

Even the geese had a hard time letting Dave go.

Closing note: Dave Berti is survived by his wife of 28 1/2 years, Sue. Sue has taught for 27 years, working with gifted students the last 12 years (Sue is also the president of the Gifted Student Association of Missouri); by his daughter Alison, who graduated from Truman State and will graduate with a Master's Degree in Speech Pathology from Western Illinois in May by his son Michael, a senior at Palmyra High School who will begin Engineering studies at the University of Missouri this fall and a brother, Jim.

Retiree's Corner

A lively bunch gathered at the Salad Bowl on Feb. 19 for the monthly retiree luncheon.

Bill Thomure has become a regular now that he is back in town. The retiree golfers did a great arm-twisting job on Bill convincing him to re-join the Golf League. Bill, who was a member a few years back, said he'd been thinking about joining, but was concerned his abilities, or lack thereof, may be a problem. The golf league members assured him there were no "professionals" in the league. Rather, it is just a great group of people that enjoy the game of golf and the companionship of their fellow golfers.

Lee Robinson mentioned that the South Side Lions were having a presentation of the play "Chicago" at the Concordia Turners Hall, on Gravois, the weekend of Feb. 27 and 28. Lee assured everyone that his part in the play did not require him to wear women's clothing this time. Many of the retirees were rather surprised that Lee was a thespian at heart. Joe Bisher was so taken that he bought several tickets. Joe said that he knew Lee always "acted" like an engineer at work. Maybe he was practicing for his acting career.

Joe also told the group about his recent trip to Hawaii and visit to the battleship Missouri. He said that the American Legion was instrumental in getting the ship moved to Pearl Harbor. It was symbolic since World War II started in Hawaii and ended on the deck of the Missouri.

It was an awesome feeling standing on the deck where great world leaders signed the peace treaty, Joe said. It was also moving because in Missouri's shadow is U.S.S. Arizona, which is a powerful memorial to the war dead. Joe is very passionate about those that have served in the military and have given their lives for freedom.

Charlie Denzel mentioned that Hank Martin was having back surgery that afternoon. Hank previously had hip surgery. We wish Hank a speedy recovery. Charlie is heading to Belize soon. He is going on a "fishing/mission" trip. Seems that a friend is going for humanitarian reasons and Charlie is going to "take up the collection."

Alex Dombi has a large number of photos from past luncheons. He is going to put them on a CD and try to have them available for viewing by the retirees in May or June. Alex enjoys capturing the retirees doing what they do best, socializing. He has also been a good source of problem solving on computer operations. Many of the retirees, who have mastered turning it on and off, sometime have difficulty dealing with e-mail and all its options. Alex has always been available to answer their questions. Thanks, Alex

Don Wampler said that he talked with Bob Maxwell recently. In addition to getting a periodical "lube job" on his knees, Bob is developing some back problems. It is not so serious that he can't play his bridge games though. Bob still has intentions of making the retirees luncheon, if and when his busy schedule will allow.

Wally Feld mentioned that the Golf League starts on Tuesday, April 13, which is the second Tuesday after daylight saving time starts and a week after Holy Week and Passover. He also mentioned that the Spring Tourney will be on Friday, April 16, but neither the location nor price has been finalized. Wally also said the MVD Tourney will be June 16-17 at Rend Lake, Benton, Ill.

Here are some notes from Information Bulletins of yore:

February 1969

Lowell Oheim, Chief of the Construction Division, retired after more than 40 years of service. His service with the District started in 1928, and for many years, he was chief of the combined Construction-Operations Division.

J.J.Matheny, the Resident Engineer at Rend Lake, provided the Benton Rotary Club an update on the lake's construction progress.

Dale Modde spoke to a group from New London, Mo., about the Cannon Reservoir project.

Dick Cameron provided the Rotary Club in Shelbyville, Ill., information about future recreation developments at the project.

Among the new employees to the District were 3 JETS: Mike Brazier, Jim Zerega, and Larry Wright.

President Nixon nominated Maj. Gen. Frederick J. Clarke to succeed Lt. Gen. William F. Cassidy as Chief of Engineers.

February 1974

Jim Petersen spoke about the 1973 flood at East St. Louis High School.

Art Johnson provided the Coast Guard Auxiliary details about the new Locks and Dam 26.

Harold Rogers made an appearance on KSD-TV on the ice in the river.

Nels Jahren talked to geology students at UMSL about foundation grouting for the Meramec and Union Dams.

Among the new employees were: Bruce Douglas (JET), Dennis Stephens (ED-H), David Low (ED-DM), James Lamkins (ED-H), Margaret Robbins (PD) and Vivian Jones (AC-O).

The Retirees meet on the third Thursday of the Month at the Salad Bowl Restaurant, 3949 Lindell at about 11 a.m.

Hope to see you there.

National Women's History Month:

'An Extraordinary Century for Women — Now, Imagine the Future'

Women in the 20th century made unique contributions to the nation and the world. Now the National Women's Project asks them to "Imagine the Future."

In the 21st century, women are in a position to do even more. But consider these outstanding Americans and their accomplishments:

• EXPLORATION: Dr. Sylvia Earle, explorer and marine scientist, led more than 50 expeditions worldwide, including the first team of women aquanauts during the 1970s. Currently, she is the founder and CEO of Deep Ocean Engineering, Inc., a company that manufactures underwater equipment.

• JOURNALISM: Eileen Welsome, a former Albuquerque, N.M., newspaper reporter, her 1990 reporting on human plutonium experiments during the 1940s won a Pulitzer Prize in journalism. Her book, The Plutonium Files, has recently been published by The Dial Press.

• SPACE: USAF Lt. Col. Eileen Collins, in 1990, was the first female pilot selected by NASA. In 1995 she became the pilot on the 67th shuttle flight. She commanded the space shuttle Columbia in 1999. Mae Jemison, M.D., was the first African-American woman to fly in space on the 50th space shuttle mission.

• THE ARTS: Maria Tallchief, the daughter of the Chief of the Osage Indians, gained international stardom as a prima ballerina of the New York City Ballet. In 1980, she and her sister, Marjorie, founded the Chicago City Ballet.

• SCIENCE: Rachel Carson is considered to be the mother of the environmental movement. As a biologist and writer, she touched off an international controversy about the effects of pesticides with her 1962 book The Silent Spring. The book served as the foundation of modern ecological awareness.

• LAW: Sandra Day O'Connor, in 1981, was appointed as the first woman U.S. Supreme Court Justice.